

Application No. 10/728,344  
Amdt. dated December 19, 2005  
Response to Office Action of July 21, 2005

**Amendment to Claims:**

Claim 1 (canceled)

Claim 2 (canceled)

Claim 3 (currently amended): The system as recited in Claim 2 21 in which said translator comprises:  
eight poles and windings of four phases.

Claim 4 (currently amended): The system as recited in Claim 2 21 further comprising:  
(d) means for measurement of an absolute position of said translator relative to said stator.

Claim 5 (original): The system as recited in Claim 4, further comprising:  
(e) means for measurement of currents associated with each phase of said multi-phase excitation.

Claim 6 (original): The system as recited in Claim 5, further comprising:  
(f) means for establishing command values for currents associated with each phase of said multi-phase excitation producing said longitudinal force;  
(g) means for comparing said currents to respective command values

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thereof to produce respective error values; and

(h) means for monitoring said error values.

Claim 7 (canceled)

Claim 8 (currently amended): The system as recited in Claim 5, further comprising:

- (k) a plurality of PROMS for continual storage of dynamic values of translator position and each phase current associated therewith;
- (l) for each PROM, means for storage of propulsive force values as a function of each of said dynamic values stored in each PROM; and
- (m) means for summing said propulsive forces.

Claim 9 (original): The system as recited in Claim 8, further comprising:

- (n) for each PROM, means for storage of levitation force values associated with said normal force; and
- (o) means for summing said levitation forces.

Claim 10 (original): The system as recited in Claim 9, further comprising:

means for establishing command values for currents associated with each phase of said multi-phase excitation producing said longitudinal force;

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means for comparing said currents to respective command values thereof  
to produce respective error values; and  
means for monitoring said error values.

Claim 11 (original): The system as recited in Claim 10, further comprising:  
means for applying said respective error values to a carrier signal; and  
means for applying respective error values of said signal to respective  
phases of said excitation current of said LSRM.

Claim 12 (currently amended): The system as recited in Claim 7, 22  
further comprising:  
means for dynamically compensating for out-of-limit error values.

Claim 13 (original): The system as recited in Claim 11, further comprising:  
means for dynamically compensating for out-of-limit error values.

Claim 14 (currently amended): The system as recited in Claim 7, 22  
further comprising:

a second LSRM, said LSRM in electromagnetic engagement with said first  
LSRM, having means for DC multi-phase excitation of a stator and translator  
thereof, to thereby produce a guidance force for said system using said error  
values of said second LSRM.

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Claim15 (original): The system as recited in Claim 14 in which said second LSRM is in quadrature with said first LSRM.

Claim16 (original). The system as recited in Claim 15, further comprising: means for dynamically compensating for out-of-limit error values

Claim 17(original). The system as recited in Claim 16, further comprising: means for independent control of said guidance force of said second LSRM.

Claim 18 (currently amended). The system as recited in Claim ~~7~~ 22, in which said translation system comprises:

a part of any of a transportation system, an elevator, a rocket launcher, an aircraft launcher, a rail gun, a conveyor, a door opener, a machine tool, or a servodrive.

Claim19 (original). The system as recited in Claim 18, further comprising: a second LSRM, said LSRM in electromagnetic engagement with said first LSRM, having means for DC multi-phase excitation of a stator and translator thereof, to thereby produce a guidance force for said system using said error values of second LSRM

Claim 20 (original). The system as recited in Claim 19, in which either of said LSRM comprise a longitudinal or transverse flux type machine.

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Claim 21 (new): A multi-phase translation system, comprising:

(a) a first linear switched reluctance machine (LSRM) having a stator and a translator configured, positioned and proportioned for electromagnetic, substantially non-mutually inductive, engagement with each other;

(b) means for selectable application of at least one phase of a multi-phase DC excitation to said LSRM, to produce a longitudinal propulsive force between said stator and said translator;

(c) means for substantially simultaneous application of at least two phases of said multi-phase excitation to said LSRM to produce a selectable value of said normal force between said stator and translator; and

(d) means for independent control of said DC excitation of said application means (b) and of said multi-phase excitation of said application means (c) above.

Claim 22 (new): The system as recited in Claim 6, further comprising:

(i) means for applying said respective error values to a carrier signal, said values associated with said command value of said comparing means (g); and

(j) means for applying respective error values of said signal to respective phases of said excitation current of said LSRM.